Colorectal Cancer:
The Importance of Early Detection

AT-A-GLANCE
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Photo courtesy of the Winship Cancer Center of Emory University

"We now have clearer insight into the natural history of colorectal cancer, better understanding of its biologic features, and clinical skills with which to intervene and make a difference for many people. Colorectal cancer screening has come of age."

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U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

CDC
CENTERS FOR DISEASE CONTROL AND PREVENTION

Colorectal Cancer

Colorectal cancer is the second leading cause of cancer-related death in the United States. In 1997, approximately 131,200 new cases of colorectal cancer will be diagnosed, and an estimated 54,900 deaths will be caused by the disease. When skin cancer is excluded, colorectal cancer follows prostate and lung cancers in incidence among men; among women, it follows breast and lung cancers. Approximately 6 percent of Americans will develop colorectal cancer within their lifetime.

Who Is at Risk?

After the age of 40, a person begins to have an increased risk of developing colorectal cancer, and this risk generally increases with advancing age. Men are more likely than women to develop colorectal cancer. African Americans are more likely than whites to be diagnosed with colorectal cancer and are more likely to die of the disease; incidence and mortality trends indicate that this gap is widening. Also at increased risk of developing colorectal cancer are those having inflammatory bowel disease, those having a family history of colorectal cancer or adenomatous polyps, and those having either of two hereditary syndromes (familial adenomatous polyposis syndrome or hereditary nonpolyposis colorectal cancer syndrome). Other factors contributing to a person's increased risk include a history of colorectal cancer or polyps; a history of ovarian, endometrial, or breast cancer; and low levels of physical activity. Low fruit and vegetable intake, diets low in fiber and high in fat, obesity, and alcohol consumption are possible additional risk factors.

Early Detection

When colorectal cancer is detected early and patients are followed up with appropriate treatment, survival is greatly enhanced. Survival rates vary significantly by stage at diagnosis: persons with colorectal cancer diagnosed at a localized stage have a 5-year relative survival rate of 91 percent, and those with colorectal cancer diagnosed at a regional stage have a 5-year survival rate of 63 percent. For persons with a diagnosis at an advanced stage of colorectal cancer (distant metastases), the 5-year survival rate drops to 7 percent, despite advances in surgical technique and postoperative therapies such as chemotherapy, radiation, and immunotherapy. Only 37 percent of colorectal cancers are diagnosed while the disease is still in a localized stage. For African Americans, the 5-year relative survival rates are lower than those for whites, and a smaller proportion of cases are diagnosed at an early stage.

Cancerous polyps and their precursors, benign adenomatous polyps, may be present in the colon for years before invasive cancer develops. Reducing the number of deaths from colorectal cancer depends on detecting and removing precancerous polyps and detecting and providing treatment for invasive cancer in its earliest stages. Colorectal cancer can actually be prevented by the removal of precancerous polyps.

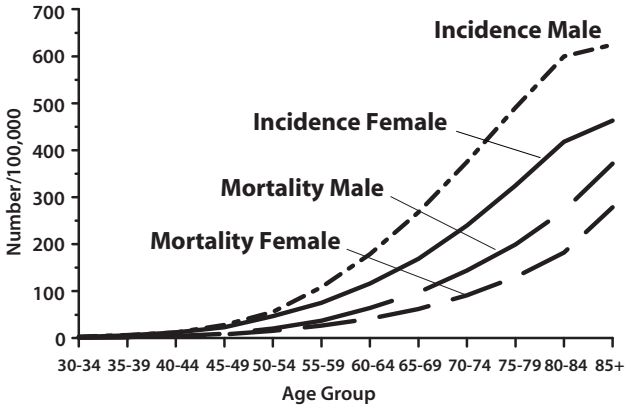
Several tests are currently available for colorectal cancer screening:

- **Fecal Occult Blood Testing (FOBT)** is a chemical test for blood in a stool sample. A positive test can indicate bleeding from a precancerous growth or from colorectal cancer. However, FOBT has the potential for false-positive and false-negative results. Some noncancerous gastrointestinal lesions cause bleeding, which creates a false positive result on an FOBT for colorectal cancer. False-negative results can occur because some polyps and cancers may not cause bleeding or may do so only intermittently. Certain foods, food supplements, and drugs may affect test results; therefore, patients should adhere to restrictions as specifically recommended by test manufacturers.

  The health benefits derived from colorectal cancer screening by FOBT are supported by a randomized control trial in the United States that showed a 33 percent reduction in mortality in the group chosen to undergo annual screening by FOBT. Two European trials have also shown benefits from the use of FOBT for screening.
- **Sigmoidoscopy** uses a hollow, lighted tube to visually inspect the wall of the rectum and distal colon. The 35-

centimeter flexible sigmoidoscope can detect about 50-55 percent of polyps; the longer 60-centimeter flexible scope is capable of detecting about 65-75 percent of polyps and 40-65 percent of colorectal cancers.

Cancers of the Colon and Rectum: Average Annual Age-Specific SEER Incidence and U.S. Mortality Rates by Gender, 1988–1992



Source: Cancer Statistics Review, 1973–1992

The efficacy of sigmoidoscopy has not been tested in a randomized control trial, but it is supported by two case-control studies.

Three other tests for colorectal cancer are commonly used in clinical practice, although no direct evidence, as yet, supports their efficacy in reducing morbidity and mortality. **Colonoscopy**, which is similar to sigmoidoscopy, can be used to visually inspect the entire colon and allows for the detection, removal, and biopsy of polyps during a single medical procedure. The **double contrast barium enema (DCBE)** procedure uses barium sulfate, air, and X-ray technology for examining the interior wall of the colon. Colonoscopy and DCBE are also used as follow-up diagnostic tools when the results of another screening test are positive. **Digital rectal examination (DRE)** is the most commonly used screening test for colorectal cancer because it can be easily incorporated into a routine physical examination and is commonly performed to check the prostate in men as well. However, it can detect only those tumors within about 10 centimeters of the anus.

Guidelines for Screening

Because of recent evidence that screening reduces mortality from colorectal cancer, three scientific organizations have released new guidelines that call for the screening of all people at average risk beginning at age 50.

- **U.S. Preventive Services Task Force (USPSTF)**: On the basis of a systematic and rigorous review of new data, the USPSTF, an independent, expert advisory panel convened by the U.S. Public Health Service, has concluded that sufficient evidence now exists to recommend colorectal cancer screening. The USPSTF recommends that clinicians include colorectal cancer screening, with periodic flexible sigmoidoscopy and/or annual FOBT, in the periodic health examination of all persons aged 50 and older.
- **The American Cancer Society (ACS)**: For those persons aged 50 and older and of average risk, the ACS recommends screening by one of the two following methods: annual FOBT, along with flexible sigmoidoscopy every 5 years; or a total colon examination, either by colonoscopy every 10 years or DCBE every 5-10 years. The ACS recommends that a DRE be conducted along with sigmoidoscopy or total colon examination. The ACS also provides separate guidelines for screening those at increased risk.
- **Interdisciplinary Task Force**: An interdisciplinary task force, originally convened by the federal Agency for Health Care Policy and Research, and supported by five major gastroenterological societies, has released guidelines very similar to those established by the ACS. Extensive documentation and rationale accompany these recommendations for colorectal cancer screening.

Although the guidelines vary, they all emphasize the health benefits derived from colorectal cancer screening—finding and removing precancerous polyps and thus preventing the development of cancer, or detecting cancer at an early stage.

Colorectal Cancer Screening Guidelines Available on the Internet:

U.S. Preventive Services Task Force
http://text.nlm.nih.gov

American Cancer Society
http://www.cancer.org/colorectal/crearly.html

Interdisciplinary Task Force
http://www.gastro.org/colcancer

Screening Usage

Results from recent studies and the new guidelines highlight the need to increase screening for colorectal cancer. Currently, screening for colorectal cancer lags far behind screening for breast and cervical cancers, perhaps because the effectiveness of screening has only recently been documented. In the 1992 National Health Interview Survey, almost 17 percent of persons aged 50 or older had never heard of an FOBT for screening, and more than 32 percent had never heard of sigmoidoscopy. About 26 percent reported having had an FOBT for screening in the past 3 years, and only about 9 percent reported having had screening sigmoidoscopy in the past 3 years. These statistics underscore the need for greater effort to educate health care providers about colorectal cancer screening guidelines and to inform the public, especially the targeted older population, about the availability and advisability of screening.

CDC Program Activities

The Centers for Disease Control and Prevention (CDC) has initiated a number of activities related to colorectal cancer screening:

- CDC is collaborating with the ACS in the establishment of a national coalition of public, private, and voluntary organizations to educate medical providers and the public about the importance of colorectal cancer screening. Potential partners include state health departments, professional digestive disease organizations (such as the American Digestive Health Foundation and the Digestive Disease National Coalition), medical societies, federal agencies, consumers, cancer survivors, managed care organizations, private industry, health educators, and the medical media. In July 1997, CDC and ACS hosted an initial National Colorectal Cancer Round Table of potential partners to discuss strategies for identifying barriers to screening, assessing current public awareness of and interest in screening, and developing and disseminating health messages to promote screening.
- CDC hosted a meeting in July 1997 to bring together representatives from state health departments that are implementing colorectal cancer initiatives. This meeting provided a forum for CDC and state staff to share current and future plans, and to identify challenges and opportunities in developing state-based colorectal cancer efforts.
- CDC is providing support for a 3-year program at the University of North Carolina Prevention Center to develop standards for performing and reporting results of sigmoidoscopies. Having such standards is important because of the anticipated increased use of sigmoidoscopy.
- CDC is providing support for two multiyear studies on patient compliance with screening regimens. In cooperation with the Kaiser Permanente Medical Care Program of Northern California, CDC is supporting a study of determinants of patient compliance with ongoing, no-cost flexible sigmoidoscopy screening. CDC is also collaborating with the Imperial Cancer Research Fund in Great Britain to examine factors that predict interest and participation in sigmoidoscopy screening in a randomly selected, population-based sample in Glasgow, Scotland.
- CDC is supporting analysis of data obtained from a randomized trial of FOBT at the University of Minnesota. The analysis includes determining whether the benefits of FOBT screening are limited to certain population subgroups.
- CDC is collaborating with the Group Health Cooperative of Puget Sound on a study of preventive services for older women. The study includes surveys of female members aged 50 or older and of providers to determine their knowledge, attitudes, and practices related to screening for colorectal cancer.
- CDC's National Center for Environmental Health, National Center for Health Statistics, and National Center for Chronic Disease Prevention and Health Promotion are collaborating to properly maintain specimens collected for the National Health and Nutrition Examination Survey III DNA bank. The Centers are facilitating extraction of DNA and development of study procedures in molecular genetic research to allow use of the specimens by scientific investigators, including those conducting studies for colorectal cancer susceptibility genes.

For more information or additional copies of this document, please contact the Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Mail Stop K-64, 4770 Buford Highway NE, Atlanta, GA 30341-3724, (770) 488-4751 cancerinfo@cdc.gov http://www.cdc.gov/nccdphp/dcpc